Claims

1. A motor driver that drives a motor composed of a rotor and plural-phase windings that generate a magnetic field for rotating the rotor, comprising:

a plurality of transistors that operate as switches for supplying current to the windings;

a position detector operable to detect a rotational position of the rotor, based on a terminal voltage of each winding; and

a switching controller operable to have performed a switching method to turn the transistors to an ON state or to an OFF state for controlling the rotor at the predetermined speed by means of the position detector,

wherein the switching controller further controls so as to force each of the transistors into the OFF state for a predetermined duration in a predetermined cycle, and

the position detector detects only while the switching controller forcedly keeps the transistor in the OFF state.

2. The motor driver of Claim 1, wherein

the rotor has permanent magnets,

each winding is mounted on a stator,

the motor driver further comprises a DC power unit that is a power supply source,

the plurality of transistors is composed of a group of transistors that operate as switches for supplying power from one terminal of the DC power unit to one end of each winding, and a group of transistors that operate as switches for supplying power from

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another terminal of the DC power unit to another end of each winding, and

the switching controller performs the control for forcing the OFF state with respect to at least transistors of one of the groups.

3. The motor driver of Claim 1, wherein

the position detector stops detecting for a predetermined period commencing at a point at which a change from the ON state to the OFF state occurs when the switching controller forces the OFF state, and

the predetermined duration relating to the switching controller forcing the OFF state is longer than the predetermined period.

4. The motor driver of Claim 1, further comprising:

a rotation speed determiner operable to determine whether or not a rotation speed of the rotor is at least a predetermined speed,

wherein, when the rotation speed is determined to be at least the predetermined speed, the position detector detects at least while a transistor is in the ON state.

5. The motor driver of Claim 4, wherein

when the rotation speed is determined to be at least the predetermined speed, the switching controller stops forcing the OFF state.

6. The motor driver of Claim 4, wherein

the position detector (a) when the rotation speed is determined

not to be at least the predetermined speed, stops detecting for a first period commencing at a point at which a change from the ON state to the OFF state occurs when the switching controller forces the OFF state, and (b) when the rotation speed is determined to be at least the predetermined speed, stops detecting for a second period commencing at a point at which a transistor changes from the OFF state to the ON state, and

the predetermined duration relating to the switching controller forcing the OFF state is longer than the first period.

7. The motor driver of Claim 4, wherein

the rotation speed determiner performs the determination based on the result of the detection by the position detector.

8. The motor driver of Claim 1 wherein

the switching controller turns a predetermined one of the transistors to the ON state in each constant period, turning the transistor to an OFF state for a predetermined period directly before turning the transistor to the ON state.

9. The motor driver of Claim 1, wherein

the predetermined cycle in which the switching controller forces the OFF state is no greater than 1/20000 seconds.

10. The motor driver of Claim 1, wherein

the position detector detects the position of the rotor by comparing a terminal voltage of each winding with a center tap voltage of all windings or with a pseudo-center tap voltage of the terminal

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voltages of the windings.

11. The motor driver of Claim 1, wherein

the cycle in which the switching controller forces the OFF

5   state includes a segment in which a driving current of each winding

is 0, and

the position detector detects during the segment.